Minutes & Slides from Proton Driver RF Meeting June 22, 2004

(G.W. Foster)

Subject: More Low Power YIG tuner Test Results & Draft IQ Modulator Spec

Attendees: Dave Wildman, Iouri Terechkine, Jim MacLachlan, Ding Sun, Eric Prebys, Ralph Pasquinelli, Pierre Bauer, Al Moretti, G.W. Foster.

**** Next Meeting June 29th ****

MINUTES

1) Dave Wildman presented first very encouraging test results from the coax style ferrite tuner. YIG Ferrite rings have been received from two vendors (TCI and Ferrite Domen). The test results were for the TCI samples. The equipment consisted of a shorted stub of 3" coax pipe into which five rings ½" thick x 3" OD x ½" ID were inserted. The ½" inner conductor for the YIG rings had a transition to a standard ~1" bullet to maintain 50 Ohm impedance in the rest of the 3" coax, which then had a coax transition to an N-type connector and heliax cable. A network analyzer was used to measure the phase and amplitude of the reflection from the stub as a function of magnetic bias field. A bias field from 0-1200 Gauss was provided by the solenoid used in the previous 805MHz YIG tests. Measurements were made at four different frequencies: 325 MHz, 433 MHz, 800 MHz, and 1300 MHz.

   The main result is that at all frequencies, the 2.5" ferrite section provided a useable phase shift (between 50 and 90 degrees) over a range of bias for which losses were less than 0.1 dB. His data is at:
   http://tdserver1.fnal.gov/8gevlinacPapers/Meeting_Minutes/RF/TCI-5cores-S11_Wildman_June_25.xls

2) Yuri Terechkine presented his work plan for high-powered tests of the waveguide style ferrite tuner. He hopes to be ready to perform high-power (but low modulation speed) tests of the tuners by the end of July. See:
   http://tdserver1.fnal.gov/8gevlinacPapers/Meeting_Minutes/RF/Waveguide_Plan_of_Work_Terechkine_June_22.doc

3) Al Moretti provided an outline specification for the 1300 MHz E-H tuner & control box that AFT is proposing to build for us. See:
   http://tdserver1.fnal.gov/8gevlinacPapers/Meeting_Minutes/RF/IQM1300_Moretti_June_25.doc

The minutes of the RF meetings are online at:
http://tdserver1.fnal.gov/8gevlinacPapers/Meeting_Minutes/RF/Index.html